

Dr. David J Janssen

1. Personal Information

Present Address:

Eawag

Seestrasse 79

CH-6047 Kastanienbaum

Switzerland

Email: david.janssen@eawag.ch; janssen.davej@gmail.com

Phone: +41 (0) 58 765 2251

OrcID: 0000-0002-9091-8936

Google Scholar: David J Janssen



2. Education

- 2011–2017** **PhD, Earth and Ocean Sciences**, School of Earth and Ocean Sciences, University of Victoria (UVic), Victoria BC Canada. *Advisor: Jay Cullen. Dissertation: Investigating the Distributions of Zinc and Cadmium in the Subarctic Northeast Pacific Ocean.*
Defense Date: 31/01/2017, Degree Completed: 17/03/2017, Degree Conferred: 05/2017.
- 2006–2011** **BSc Summa cum Laude**, Chemistry, Humboldt State University, Arcata California USA.
Degree conferred: 18/05/2011.

3. Employment History

- 2021–Present** **Group Leader**, tenure track, Department Surface Waters, Eawag; 10/2021–present.
- 2017–2021** **Postdoctoral Researcher**, Institute of Geological Sciences, University of Bern (UniBern), Bern Switzerland, *Advisor: Samuel Jaccard*; 10/2017–9/2021.
- 2017** **Research Technician**, Institute of Ocean Sciences, Fisheries and Oceans Canada, Sydney BC Canada, *Contracted by: Dr. Andrew Ross, Institute of Ocean Sciences*; 03/2017–08/2017.
- 2011–2017** **Graduate Research Assistant**, School of Earth and Ocean Sciences, University of Victoria, Victoria BC Canada, *Advisor: Dr. Jay Cullen*; 09/2011–03/2017.
- 2007–2011** **Undergraduate Research Assistant**, Chemistry Department, Humboldt State University, Arcata California USA, *Advisor: Dr. Matt Hurst*; 12/2010–05/2011.

4. Refereed Journal Publications

- 2021** Horner, T.J., Little, S.H., Conway, T.M., Farmer, J.R., Hertzberg, J.E., **Janssen, D.J.**, Lough, A.J.M., McKay, J., Tessin, A., Galer, S.J.G., Lacan, F., Paytan, A., Wuttig, K., GEOTRACES–PAGES Biological Productivity Working Group Members. Bioactive trace metals and their isotopes as paleoproductivity proxies: An assessment using GEOTRACES-era data. Accepted in Global Biogeochemical Cycles. doi: doi.org/10.1029/2020GB006814.
- 2021** Nixon, R.L., Peña, M.A., Taves, R., **Janssen, D.J.**, Cullen, J.T., & Ross, A.R. Evidence for the production of copper-complexing ligands by marine phytoplankton in the subarctic northeast Pacific. *Mar. Chem.* **237**, 104034. doi: 10.1016/j.marchem.2021.104034.
- 2021** Pöppelmeier, F., **Janssen, D.J.**, Jaccard, S.L., Stocker, T.F. Modeling the marine chromium cycle: New constraints on global-scale processes. *Biogeosci.* **18**, 5447–5463. doi: 10.5194/bg-18-5447-2021.
- 2021** **Janssen, D.J.**, Rickli, J., Abbott, A.N., Ellwood, M.J., Nasemann, P., Gilliard, D., Twining, B.S., Ohnemus, D.C., Jaccard, S.L. Release from biogenic particles, benthic fluxes, and deep water circulation control Cr and $\delta^{53}\text{Cr}$ distributions in the ocean interior. *Earth Planet. Sci. Let.* **574**, 117163. doi: 10.1016/j.epsl.2021.117163.
- 2020** Nazarova, T., Alessic, D.S., **Janssen, D.J.**, Bernier-Latmani, R., Wanner, C. *In Situ* Biostimulation of Cr(VI) Reduction in a Fast-Flowing Oxidic Aquifer. *ACS Earth Space Chem.* **4**(11), 2018–2030. doi: 10.1021/acsearthspacechem.0c00200.
- 2020** Nasemann, P., **Janssen, D.J.**, Rickli, J., Grasse, P., Franck, M., Jaccard, S.L. (2020). Chromium reduction and associated stable isotope fractionation restricted to anoxic shelf waters in the Peruvian Oxygen Minimum Zone. *Geochim. Cosmochim. Acta.* **285**, 207–224. doi: 10.1016/j.gca.2020.06.027.
- 2020** Whitby, H., Planquette, H., Cassar, N., Bucciarelli, E., Osburn, C.L., **Janssen, D.J.**, Cullen, J.T., González, A.G., Völker, C., Sarthou, G. A call for refining the role of humic-like substances in the oceanic iron cycle. *Sci. Rep.* **10**, 2144. doi: 10.1038/s41598-020-62266-7.
- 2020** **Janssen, D.J.**, Sieber, M., Ellwood, M.J., Conway, T.M., Barrett, P.M., Chen, X., de Souza, G.F., Hassler, C.S., Vance, D., Jaccard, S.L. Trace metal and nutrient dynamics across broad geochemical gradients in the Indian and Pacific sectors of the Southern Ocean. *Mar. Chem.* **221**, 103773. doi: 10.1016/j.marchem.2020.103773.

- 2020 **Janssen, D.J.**, Rickli, J.R., Quay, P.D., White, A.E., Jaccard, S.L. Biological control of chromium redox and stable isotope composition in the surface ocean. *Glob. Biogeochem. Cy.* 34(1), e2019GB006397. doi: 10.1029/2019GB006397.
- 2019 Rickli, J., **Janssen, D.J.**, Ellwood, M.E., Hassler, C.S., Jaccard, S.L. Chromium biogeochemistry and stable isotope distribution in the Southern Ocean. *Geochim. Cosmochim. Acta.* **262**, 188-206. doi: 10.1016/j.gca.2019.07.033.
- 2019 **Janssen, D.J.**, Abouchami, W.A., Galer, S.J.G., Purdon, K.B., Cullen, J.T. Particulate cadmium stable isotopes in the subarctic northeast Pacific reveal dynamic Cd cycling and a new isotopically light Cd sink. *Earth Planet. Sci. Let.* **515**, 67-78. doi: 10.1016/j.epsl.2019.03.006.
- 2018 Schlitzer, R., and 285 others (including **D.J. Janssen**). The GEOTRACES Intermediate Data Product 2017. *Chem. Geol.* **493**, 210-223. doi: 10.1016/j.chemgeo.2018.05.040.
- 2018 Jackson, S.L., Spence, J., **Janssen, D.J.**, Ross, A., Cullen, J.T. Determination of Mn, Fe, Ni, Cu, Zn, Cd and Pb in seawater using offline extraction and triple quadrupole ICP-MS/MS. *J. Anal. Atom. Spectrom.* **33**(2), 304-313. doi: 10.1039/C7JA00237H.
- 2017 **Janssen, D.J.**, Abouchami, W., Galer, S.J.G., Cullen, J.T. Fine-scale spatial and temporal cadmium isotope variability in the subarctic northeast Pacific. *Earth Planet. Sci. Let.* **472**, 241-252. doi: 10.1016/j.epsl.2017.04.048.
- 2017 Fassbender, A.J., and 81 others (including **D.J. Janssen**). Perspectives on Chemical Oceanography in the 21st century: Participants of the COME ABOARD Meeting examine aspects of the field in the context of 40 years of DISCO. *Mar. Chem.* **196**, 181-190. doi: 10.1016/j.marchem.2017.09.002.
- 2015 **Janssen, D.J.**, Cullen, J.T. Decoupling of zinc and silicic acid in the subarctic northeast Pacific interior. *Mar. Chem.* **177**, 124-133. doi: 10.1016/j.marchem.2015.03.014.
- 2014 **Janssen, D.J.**, Conway, T.M., John, S.G., Christian, J.R., Kramer, D.I., Pedersen, T.F., Cullen, J.T. Undocumented sink for cadmium in open ocean oxygen deficient zones. *Proc. Nat. Acad. Sci. USA.* **111**(19), 6888-6893. doi: 10.1073/pnas.1402388111.

5. Funded Research Projects

- 2021 **Ambizione Grant**: Biological productivity-dust coupling in the glacial Southern Ocean: New insights from metal isotopes. Swiss National Science Foundation.

6. Research Experience

- 2018 **Visiting Researcher**, *Group of Dr. Michael Ellwood*; 09/08/2018 to 08/09/2018
Australian National University, Canberra Australia,
- 2017-21 **Postdoctoral Research Assistant**, *Advisor: Dr. Samuel Jaccard*; 15/10/2017 to present, Institute for Geological Sciences, University of Bern, Bern, Switzerland.
- 2017 **Research Technician**, *Contracted by: Dr. Andrew Ross*; 18/03/2018 to 30/08/2018
Institute of Ocean Sciences, Fisheries and Oceans Canada, Sidney, BC Canada
- 2011-17 **Graduate Research Assistant**, *Advisor: Dr. Jay Cullen*; 07/09/2011 to 17/03/2018
School of Earth and Ocean Sciences, University of Victoria, Victoria, BC Canada
- 2015-16 **Visiting Research Assistant**, *Advisors: Dr. Steve Galer (MPIC), Dr. Wafa Abouchami (IPG Paris)*; 01/10/2015 to 11/05/2016
Max Planck Institute for Chemistry, Mainz Germany
- 2013-14 **Visiting Research Assistant**, *Advisors: Dr. Wafa Abouchami and Dr. Steve Galer*; 01/10/2013 to 20/05/2014, Max Planck Institute for Chemistry, Mainz, Germany
- 2010 **NSF-REU**, *Advisor: Dr. Kelly Falkner*; June-Aug 2010
College of Oceanic and Atmospheric Sciences, Oregon State University, Corvallis, Or.
- 2010-11 **Undergraduate Research Assistant**, *Advisor: Dr. Matt Hurst*, Dec 2010 – May 2011
Chemistry Department, Humboldt State University, Arcata, Ca.
- 2007-10 **Undergraduate Research Assistant**, *Advisor: Dr. Matt Hurst*, July 2007 – Nov 2010
Chemistry Department, Humboldt State University, Arcata, Ca.

7. Oral contributions to conferences

- 2021 **Janssen, D.J.**, Rickli, J., Wille, M., Hassler, C.S., Vogel, H., Jaccard, S.L. Chromium cycling in euxinic basins: Implications for the $\delta^{53}\text{Cr}$ paleoredox proxy from a modern system (Lake Cadagno, Ticino, Switzerland). Oral presentation at the 2021 Swiss Geoscience Meeting, 19-20/11/2021.
- 2021 **Janssen, D.J.**, Rickli, J., Abbott, A.N., Ellwood, M.J., Nasemann, P., Gilliard, D., Twining, B.S., Ohnemus, D.C., Jaccard, S.L. Release from biogenic particles, benthic fluxes, and deep water circulation control Cr and $\delta^{53}\text{Cr}$ distributions in the ocean interior. Elucidating biogenic components of the $\delta^{53}\text{Cr}$ cycle in the modern ocean. Oral presentation at the 2021 Virtual Goldschmidt Conference, 4-9/07/2021.
- 2020 **D. Janssen**, Sieber, M., Ellwood, M., Conway, T., Barrett, P.M., Hassler, C., Jaccard, S. Significant Biological Uptake of Trace Metals in the Mertz Glacier Polynya, East Antarctica. Oral presentation at the 2020 Ocean Sciences Meeting, San Diego California, USA, 17-21/02/2020.

- 2019** D. Janssen, Rickli, J.R., Quay, P.D., White, A.E., Jaccard, S.L. Biological control of $\delta^{53}\text{Cr}$ in the surface ocean. Oral presentation at the 2019 Goldschmidt Conference, Barcelona Spain, 19-23/08/2019.
- 2018** D. Janssen, W. Abouchami, S. Galer, K. Purdon, J. Cullen. Particulate Cd isotopes demonstrate a dynamic oceanic Cd cycle. Poster presentation at the 2018 Ocean Sciences Meeting in Portland, Or, USA, 11-16/02/2018.
- 2017** D. Janssen, K. Purdon, J. Cullen, W. Abouchami, S. Galer, P. Lam. Particulate cadmium concentration and isotopes along Line P in August 2014. Oral presentation at the 2017 Line P Workshop, Institute of Ocean Sciences, Sidney, BC Canada, 09/03/2017.
- 2016** D. Janssen. Investigating the distributions of Zn and Cd in the oxygen-depleted ocean interior. Invited oral presentation at Dissertations in Chemical Oceanography (DISCO) XXV, Honolulu, Hi USA, 9-13/10/2016.
- 2015** D. Janssen, J. Cullen, et al. Zinc in the Canadian Arctic Archipelago and Baffin Bay. Oral presentation at the ArcticNet Annual Scientific Meeting 2015, Vancouver, BC Canada, 7-11/12/2015.
- 2015** D. Janssen, J. Cullen, W. Abouchami, S. Galer. Dissolved cadmium along Line P highlights water-column trace metal deficits. Oral presentation at the 2015 Line P Workshop, Institute of Ocean Sciences, Sidney, BC Canada, 03/03/2015.
- 2014** D. Janssen, J. Cullen, W. Abouchami, S. Galer, H. de Baar. Cadmium isotopes along the Line-P transect in the northeast subarctic Pacific. Oral presentation at the 2014 Goldschmidt Conference, Sacramento, Ca USA, 8-13/06/2014.
- 2014** D. Janssen, J. Cullen. Improvements to a fluorescence-based flow-injection method for shipboard determination of dissolved zinc. Poster presentation at the 2014 Ocean Sciences Meeting, Honolulu, Hi USA, 23-28/02/2014.
- 2012** D. Janssen, J. Cullen. Investigating the distribution of dissolved copper, zinc, silver and cadmium in the Pacific Ocean. Oral presentation at the American Geophysical Union (AGU) Fall Meeting, San Francisco, Ca, 3-7/12/2010.
- 2010** D. Janssen, J.M. Lee, E. Boyle, P. Yeats, K. Falkner. Cadmium and barium distributions in Baffin Bay and Nares Strait summer 2003. Poster presentation at the AGU Fall Meeting, San Francisco, Ca USA, 13-17/12/2010.
- 2010** D. Janssen, J. Martin, M. Hurst. Temporal variation and removal of metals and nutrients in a constructed wetlands. Poster presentation at the American Chemical Society National Meeting, San Francisco, Ca USA, 21-25/03/2010.

8. Institutional Responsibilities

- 2012-13** Graduate Student Representative, UVic School of Earth and Ocean Sciences, 01/2012-09/2013.

9. Supervision of Junior Researchers

- 2021-Present** Delphine Gilliard (University of Lausanne PhD student), co-supervisor
- 2019-2020** Delphine Gilliard (Uni Bern masters student), co-supervisor
- 2019** Tatiana Nazarova (Uni Bern masters student), trained and supervised in the lab
- 2017** Edward Gawne (UVic Undergraduate Honours thesis), trained and supervised in the lab
- 2017** Annaliese Meyer (UVic Undergraduate, NSERC USRA), trained and supervised in the lab and field
- 2016** Saskia Kowallik (UVic Undergraduate, NSERC USRA), trained and supervised in the lab
- 2015** Laura McKay (UVic Undergraduate, NSERC USRA), trained and supervised in the lab
- 2014** Kathryn Purdon (UVic Undergraduate, NSERC USRA), trained and supervised in the lab and field
- 2013-2015** Sarah Jackson (UVic M.Sc. student), trained in the lab
- 2013** Ashley Davidson (UVic Undergraduate, Honours thesis), trained in the lab
- 2012** Desirée Dillman (UVic Undergraduate, NSERC USRA), trained and supervised in the lab and field

10. Teaching Activities

- 2017** **Guest Instructor**, EOS 312: Chemical Oceanography, School of Earth and Ocean Sciences, University of Victoria, 22 & 24/02/2017.
- 2014** **Instructor**, EOS 312: Chemical Oceanography, School of Earth and Ocean Sciences, University of Victoria, Co-taught with Dr. Jay Cullen, 07/2014-09/2014
- 2013** **Teaching Assistant**, EOS 240: Geochemistry, School of Earth and Ocean Sciences, University of Victoria, 01/2013-04/2013.
- 2012** **Teaching Assistant**, EOS 240: Geochemistry, School of Earth and Ocean Sciences, University of Victoria, 01/2012-04/2014.
- 2007-2011** **Supplemental Instructor**, Chemistry 107, 109, and 110: Fundamentals of Chemistry, General Chemistry I & II, Chemistry Department, Humboldt State University. 08/2007-05/2011.

11. Memberships in Panels and Scientific Reviewing Activities

Reviewer for: Biogeosciences, Chemical Geology, Earth & Planetary Science Letters, Geochimica Cosmochimica Acta, Gondwana Research, Limnology & Oceanography, Marine Chemistry, Czech National Science Foundation, United States National Science Foundation, contribution to reviews for Proceedings of the National Academy of Sciences of the United States of America.

12. Active Memberships in Scientific Societies

European Association of Geochemistry (EAG)
American Society of Limnology & Oceanography (ASLO)

13. Organization of Scientific Conferences

2022 Session Convener, Sources, sinks, and cycling of trace elements in coastal and near-shore systems (CT-10), Ocean Sciences Meeting, 27/02-04/03/2022
2020 Session Convener, Biogeochemical cycles in oxygen minimum zones: mechanisms, drivers, and change (CT-42A), Ocean Sciences Meeting, San Diego California, 16-21/02/2020.
2015 Acting Session Co-Chair, Arctic GEOTRACES, ArcticNet Annual Scientific Meeting, Vancouver BC, 7-11/12/2015.

14. Prizes, Awards and Fellowships

2016 Dissertations in Chemical Oceanography (DISCO) XXV invited participant. 9-13/10/2016
2015–2016 Max Planck Institute for Chemistry Doctoral Stipend. 10/2014-05/2015
2014–2015 University of Victoria Dr. Arne H. Lane Graduate Fellowship. 09/2014-008/2015
2014 Ocean Sciences Meeting, Honolulu Hi, Outstanding Student Presentation Award. 02/2014
2014–2016 UVic Graduate Award. 09/2014-08/2016
2013–2014 DAAD (German Academic Exchange Service) Visiting Research Scholarship. 10/2013-04/2014
2013–2014 University of Victoria Bob Wright Graduate Scholarship. 09/2013-08/2014
2013 UVic SEOS Grad Student Workshop First Prize for Research Presentation. 19/04/2013
2011–2014 UVic Graduate Student Fellowship. 09/2011-08/2014
2011–2012 UVic Graphic Office Interiors Scholarship. 09/2011-08/2012
2011 Humboldt State University Outstanding Student of the Year 2010-2011. 04/2011
2011 Scripps Institute of Oceanography T. R. and Edith Folsom Graduate Fellowship (Declined). 03/2011
2010 American Chemical Society Undergraduate Award in Inorganic Chemistry. 08/2010
2010 NSF Research Experience for Undergraduates (REU) Fellowship. 06-08/2010

15. Field Research Experience

2018 *RV Investigator*, Chief Scientist: Dr. Michael Ellwood (Australian Nat. U.). 11/09/2018-08/10/2018.
2018 *RV Investigator*, Chief Scientist: Dr. Tom Trull (CSIRO, Australia). 3-21/03/2018.
2017 *RV Kilo Moana*, Chief Scientists: Dr. Paul Quay (UW) and Dr. Angel While (OSU). 3-26/09/2017.
2016-17 *Akademik Tryoshnikov*, Chief Scientist: Dr. David Walton (British Antarctic Survey); Project Lead: Dr. Michael Ellwood (Australian Nat. U.). 20/12/2016-19/01/2017.
2016 *MSV John Strickland*. 07/07/2016.
2016 *MSV John Strickland*. 28/01/2016.
2015 *NGCC Amundsen*, Chief Scientist: Dr. Roger Francois (UBC). 10/07/2015 to 20/08/2015.
2014 *CCGS JP Tully*, Chief Scientist Marie Robert (IOS, Canada). 19/08/2014 to 04/09/2014.
2014 *MSV John Strickland*. 30/07/2014.
2012 *CCGS JP Tully*, Chief Scientist Marie Robert (IOS, Canada). 14-30/08/2012.
2012 *CCGS JP Tully*, Chief Scientist Marie Robert (IOS, Canada). 22/05/2012 to 08/06/2012.
2010 *R/V Point Sur*, Chief Scientist Dr. Ken Bruland (UC Santa Cruz). 7-25/05/2011.